Prototype of the Next Generation OH instrument

Completed Technology Project (2014 - 2015)

Project Introduction

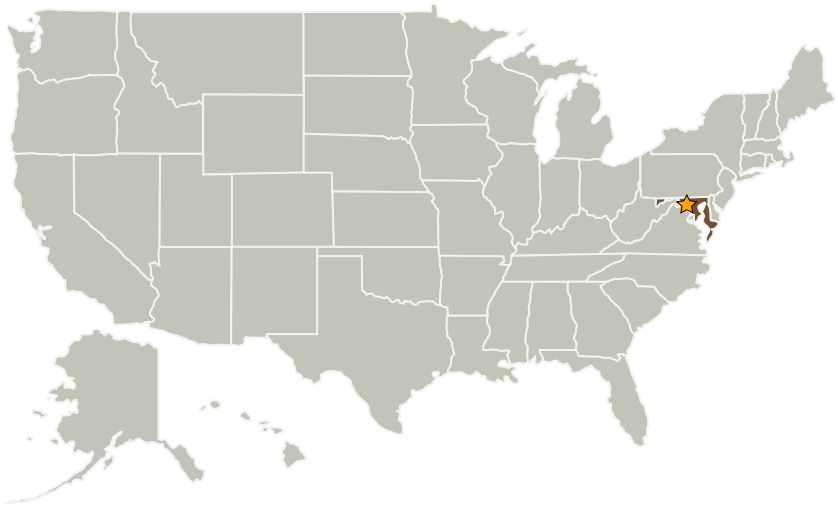
The lifetime of methane in climate models is uncertain by a factor of two largely because the abundance of the hydroxyl radical, OH, is not well understood. As a result, new *in situ* measurements of OH are needed to constrain climate models in the coming decade. We propose to build a prototype for an *in situ* OH instrument and demonstrate a new measurement capability in order to position ourselves for instrument development funding opportunities.

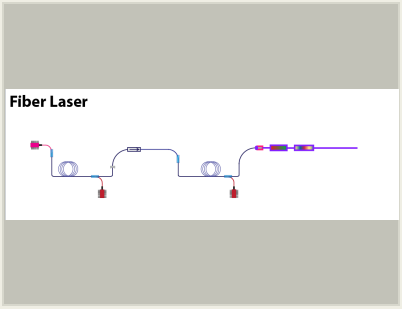
We will use this IRAD to build and demonstrate a prototype in situ OH instrument using a new fiber laser that we developed under last year's IRAD and a new detection system that will be part of this work. We will use FPGA-based data acquisition that we have developed recently, as well as new capabilities aimed specifically at this project.

Anticipated Benefits

This technology will enable us to operate the laser in the lab to make a proof of concept measurement. The controller will also be portable so that we can make the demonstration in a relavent outdoor environment.

Primary U.S. Work Locations and Key Partners





Fiber Laser

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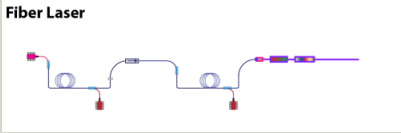
Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations
Maryland

Images



Next Generation OH instrument Project
Fiber Laser
(https://techport.nasa.gov/image/16415)

Links

GSC-17268-1
(https://ntts.arc.nasa.gov/app/)

Project Website:

http://sciences.gsfc.nasa.gov/sed/

Organizational Responsibility

Responsible Mission Directorate:
Mission Support Directorate (MSD)

Lead Center / Facility:
Goddard Space Flight Center (GSFC)

Responsible Program:
Center Independent Research & Development: GSFC IRAD

Project Management

Program Manager:
Peter M Hughes

Project Manager:
Matthew J Mcgill

Co-Investigators:
Demetrios P Poulios
Paul R Stysley
Steven A Bailey

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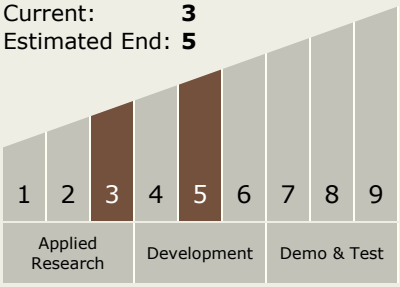
Completed Technology Project (2014 - 2015)

Technology Maturity (TRL)

Start: **3**
Current: **3**
Estimated End: **5**



Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.5 Lasers